

REMARKS

The Office Action mailed February 5, 2003 has been reviewed and carefully considered. Claims 5 and 6 have been canceled. Claims 1-4 and 7 are now pending in this case, with claim 1 being the independent claim. Claims 1, 4 and 7 have been amended. Reconsideration of the above-identified application, as herein amended and in view of the following remarks, is respectfully requested.

OBJECTION TO AMENDMENT UNDER 35 U.S.C. 132

Applicants' after-final amendment, which has now been entered pursuant to a request for continued examination (RCE), was objected to under 35 U.S.C. 132 for allegedly introducing new matter into claim 1 regarding the width of stripes along the optical fiber. Item 5 of the Office Action states that applicant is required to cancel the purported new matter. We traverse this objection and the requirement. Claim 1, as now amended in this reply, retains essentially the same limitation regarding the width of stripes.

Step (c) of claim 1, as amended, recites "the light source transmitted through the lens system and the amplitude mask to the optical fiber would form stripes along the optical fiber that become narrower as the stripes become more distant from the optical axis."

The Office Action focuses on lines 15-17 at page 11 of the specification.

As recited on lines 15-17, “As a result, the widths of grating stripe patterns formed along the optical fiber 37 through the light projected through the amplitude mask 36 have identical widths, as shown in FIG. 7.” [underlining has been added for emphasis].

Lines 3-4 at page 11 indicate that the passage cited by the Office Action is merely an illustration (page 11, line 6: “illustrates”; page 10, line 11: “illustrating”) of equalizing the longitudinal and transverse ratios (claim 1, step (b)) in the case where the converging point is located at infinity (page 10, lines 12-13: “As shown in FIG. 6 . . . can be arranged in parallel . . .”; page 11, lines 3-4: “FIG. 7 is a partial sectional view illustrating the process of forming the optical fiber grating by the apparatus of FIG. 6.”)

On the other hand, FIG. 5 demonstrates that “the light source transmitted through the lens system and the amplitude mask to the optical fiber would form stripes along the optical fiber that become narrower as the stripes become more distant from the optical axis” as explicitly required by the language of step (a) of claim 1 and as supported in the specification (page 9, lines 6-8 and 15-17; page 12, lines 22 – page 13, line 12). Therefore, the new matter objection and accompanying requirement cannot be maintained. Reconsideration and withdrawal of the objection and the requirement are respectfully requested.

CLAIM REJECTIONS UNDER 35 U.S.C. 112, FIRST PARAGRAPH:

Claims 1-7 were rejected under 35 U.S.C. 112, first paragraph, in items 7 and 8 of the Office Action. The points mentioned in items 7 and 8 have already been addressed hereinabove and by the amendment of claim 1. In particular, item 8 states that claim 1 lacks an explicit method step for fabricating the fiber grating. Step (d) of claim 1 as amended recites “producing said light in a path from said light source to the lens system, to the amplitude mask, and to said optical fiber to fabricate said apodized optical fiber grating.” Support for amendment of claim 1 to add the above-cited language is found in the specification at page 4, lines 6-11. Accordingly, all bases for rejection under Section 112, first paragraph are believed to be overcome by amendment of claim 1.

CLAIM REJECTIONS UNDER 35 U.S.C. 112, SECOND PARAGRAPH:

In items 9 and 10 of the Office Action, claims 1-7 were rejected under 35 U.S.C. 112, second paragraph, for alleged incompleteness of claim 1. Specifically, item 10 states that the claim 1 method steps lack logical connection. Claim 1 has now been amended to overcome the bases for rejection cited in items 9 and 10.

In particular, step (a) of claim 1 as amended provides “selecting a slit pattern for an amplitude mask, said slit pattern having a period.” Support for this amendment is found in the specification (page 8, lines 6-16). Step (a) further provides

“selecting . . . a positioning of a lens system between a light source and the amplitude mask, and of the amplitude mask between the lens system and an optical fiber so that the light source, the lens system, the amplitude mask and optical fiber are arranged on an optical axis.” Support for this amendment is found in the specification (page 8, lines 3-4). Step (a) further provides “selecting . . . so that lines defined by rays of ultraviolet light leaving the lens system for the amplitude mask meet at a converging point.”

Support for this amendment is found in the specification as explained above, and in FIG. 5 and its accompanying text in the specification.

Step (b) recites “determining a longitudinal ratio equal to a transverse ratio by updating said positioning, said longitudinal ratio being a ratio of a distance between said converging point and the amplitude mask to a distance between said converging point and the optical fiber, said transverse ratio being a ratio of said period to a period of grating stripes that would be produced by said light.” Support for this amendment is found in the specification (page 11, line 19 – page 20, line 5).

Step (c) recites “determining a thickness of the amplitude mask so that said light from the light source transmitted through the lens system and the amplitude mask to the optical fiber would form stripes along the optical fiber that become narrower as the stripes become more distant from the optical axis.” Support for this amendment is found in FIG. 5 and corresponding text in the specification.

The support for step (d) has already been discussed above.

Claim 1 is accordingly believed to be complete.

Items 9 and 10 of the Office Action also allege, in particular, that the claim 1 phrases "longitudinal ratio set in step (b)," "setting" and "converging point" are indefinite. The amendment of claim 1 is believed to overcome all of the points raised in items 9 and 10.

CLAIM REJECTIONS UNDER 35 U.S.C. 103(a):

Claims 1-7 were rejected under 35 U.S.C. 103(a) as allegedly unpatentable over U.S. Patent No. 6,269,208 to Bhatia et al. ("Bhatia").

Bhatia fails to disclose or suggest at least steps (a) and (c) of claim 1 as amended.

As discussed above, step (c) of claim 1 recites "determining a thickness of the amplitude mask so that said light . . . would form stripes along the optical fiber that become narrower as the stripes become more distant from the optical axis." .” Bhatia does not mention or even hint at the existence of stripes “that become narrower as the stripes become more distant from the optical axis.”

For at least this reason, Bhatia fails to render claim 1 obvious. Accordingly, claim 1 is believed to be patentable over Bhatia. Claims 2-4 and 7 depend from and therefore include all of the limitations of claim 1, and are likewise deemed to

patentable over Bhatia for at least the same reason.

DOUBLE PATENTING REJECTION

Claim 1 was rejected under the judicially created doctrine of obviousness-type double patenting as unpatentable over claims 1 and 10 of U.S. Patent No. 6,201,911 to Jang ("Jang").

Both claims 1 and 10 of Jang likewise fail to disclose or suggest at least the above-described feature of step (c) of claim 1 of the present invention, i.e., the narrowing of stripes. Accordingly, the double patenting rejection cannot be sustained.

In view of the foregoing amendments and remarks, it is believed that this application is now in condition for allowance. The Examiner is invited to contact the undersigned in the event of any perceived outstanding issues so that passage of the case to issue can be effected without the need for a further Office Action.

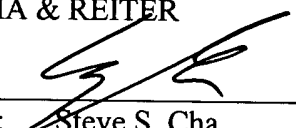
Amendment
Serial No. 09/750,576

Docket No. 5000-1-181.

In the event that any additional fee is required to continue the prosecution of this Application as requested, please charge such fee to Deposit Account No. 502-470.

Respectfully submitted,

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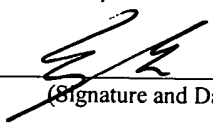
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